Michael O. Leavitt
Governor
Ted Stewart
Executive Director
James W. Carter
Division Director

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801
(801) 538-5291
801-359-3940 (Fax)
801-538-5319 (TDD)

October 29, 1996

Greg Hawkins, Manager
Brush Wellman, Inc.
P.O. Box 815
Delta, Utah 84624

Re: Reclamation Release Based on Site Inspection of September 12, 1996, and Past Variances, Brush Wellman, Topaz Mine, M/023/003, Juab County, Utah

Dear Mr. Hawkins:

Thank you for providing my staff with the opportunity to inspect your site on September 12, 1996. The following areas were inspected and the following determinations were made regarding reclamation release.

Site	Job	Determination
Sigma Emma	rip and seed roadway	Released
Section 16 #1	rip and seed dump	Released with a condition*
Roadside #1 & #2	rip and seed	Released

**The condition is that alternative reclamation methods/techniques will be tried in this area to try and enhance overall vegetative success. These methods and their success will be documented by the operator in the Annual Report and will be limited to this area.*

The tuff and rhyolite covered dumps totaling 432.6 acres, as referenced in the attached memo (given to the Division during the site inspection) and shown on drawing D:\Acad\reclaim\DOGM96-1, were given a variance from the 70 percent revegetation standard in previous Division correspondence. For future reference, we request that you use the disturbed area map contained in your approved permit to show variances and released areas, instead of Drawing D:\Acad\reclaim\DOGM96-1. The latest autocad drawing is confusing and difficult to interpret. This letter recognizes and confirms the previous variance as referenced in past correspondence. The Division hereby releases the 432.6 acres from future reclamation requirements by the operator. As we look forward to the eventual reclamation of the remaining mine site disturbances, it is crucial that the Division, the operator, and the BLM continue to work together in developing site specific reclamation practices which will help insure that the 70% revegetation performance standards are achieved.

We have prepared the following table summarizing disturbed acreage that will ultimately need to be reclaimed. Some of the acreage is existing and some is yet to be mined. This summary is the

same as the BLM's list which was contained in their October 22, 1996 letter to you. The only modification to this list is the addition of State Lands. The acreages are to be used only as a guide since they are acreage interpretations from various mapping sources. These acreages would have to be verified on the ground to be considered accurate. The bond associated with the outstanding unreclaimed areas has not changed from the original sum of $311,300 dollars. This amount which was based on 1189 acres of projected life of mine disturbance. The mine will remain bonded for the maximum projected disturbance and the accounting of disturbed acreage is an exercise to keep track of the exact disturbance at any point in time.

Disturbance	Acreage (acres)
Section 16 #1 Dump	20.00
Roadside/Fluro # 3 Pit	20.13
" " " Dump	12.19
Section 16 Pit	13.00 ✱ Federal lands & 26.4 State lands
Blue Chalk North #2 Pit	13.00 ✦
Blue Chalk North #1 Pit	20.64 ✦
Monitor #3 Pit	23.00 ✦
Monitor #3 Dump	29.00 ✦
Blue Chalk South Pit	21.74
Roads	30.00 ✱
Total Acreage disturbed or to be disturbed	**229.10** acres

✱ "acreage estimated by the BLM"
✦ "to be disturbed in future mining addressed in 1996 amendment"

Thank you for your attention to the accurate accounting of your mining disturbances and reclamation. We appreciate your continued cooperation and look forward to working with you in finding solutions to the oftentimes difficult reclamation challenges we are faced with in these harsh mining environments. Should you have any questions concerning this letter please contact me or Tom Munson of my staff.

Sincerely,

D. Wayne Hedberg
Permit Supervisor
Minerals Reclamation Program

jb
Attachments: Brush's 9/12/96 memo and DOGM's 10/14/96 memo
cc: Ron Teseneer, BLM-Warm Springs RA
M023003.let

During inspection

BRUSH WELLMAN, INC.

DATE: September 12, 1996

TO: Reclamation '96 File

FROM: Clyde Yates

RE: Varianced Dump Acreage as of 1988 Revision

CC: Greg Hawkins, BLM Fillmore Office, UDOGM

DIFFERENCE BETWEEN PLAN AND SURVEY MAPS

PLATE 2.0-1 OUT OF DOC 4

ACREAGES GIVE W VARIANCE

A letter dated September 28, 1988 to Ken Poulson (retired Vice President of Mining and Exploration, BWI) from Lowell Braxton (Administrator, UDOGM) granted several variances and stipulations as requested in the MRP as submitted on June 10, 1988. Page 2, paragraph 3. of the letter discusses variance from revegetation of 255 acres of tuff covered dumps and 177 acres of rhyolite covered dumps. Tabulated below are the details of this acreage. Please note that the MRP is rather enigmatic and that acreage divisions are difficult to decipher in some instances..

Tuff Covered Dump	Acreage	MRP Pg #	Comments
Roadside 1 & 2	113.6	9	Assumed to be all tuff
Blue Chalk North and South	20.6	9	Remainder of total less tuff
Fluro	64.9	9	Assumed to be all tuff
Sigma Emma	56.1	9	Remainder of total less tuff
Total Acreage	**255.2**		
Rhyolite Covered Dumps			Data below REVISED 11/14/88
Blue Chalk North and South	72.8	46	Ripped & seeded in 1988
Sigma Emma	13.3	46	Ripped & seeded in 1987
Taurus	33.3	46	Ripped & seeded in 1987
Rainbow	58.0	46	Ripped & seeded in 1989
Total Acreage	**177.4**		

The sum of tuff and rhyolite covered dumps is **432.6 Total Acres**. This data has been illustrated on the drawing (d:\acad\reclaim\DOGM96-1) which was provided to the BLM and UDOGM representatives on their site visits of 9/10/96 and 9/12/96, respectively. The documentation which was provided during the same visits is consistent with this data and the drawing.

/jw

Michael O. Leavitt
Governor
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October 14, 1996

TO: Minerals File

FROM: Tom Munson, Reclamation Hydrologist

RE: Site Inspection, Topaz Mine, Brush Wellman Mine, M/023/003, Juab County, Utah

Date of Inspection: September 12, 1996
Time of Inspection: 10:00 a.m. - 3:00 p.m.
Conditions: Sunny
Participants: Greg Hawkins and Clyde Yates, Brush Wellman; Tom Munson, DOGM

Purpose of Inspection: To inspect reclamation of mine site

On September 12, 1996, an inspection of the Brush Wellman mine occurred between Division inspector, Tom Munson and Brush Wellman representatives, Greg Hawkins and Clyde Yates. Areas of the Sigma Emma dump, the Section 16 #1, and a section of Roadside #1 and #2 were inspected for release. The Roadside #1 and #2 looked excellent, the Sigma Emma roadway looked good, and Section 16 #1 was considered marginal and released with conditions. Mr. Yates should be complemented for his work on the East Sigma Emma roadway. The erosion control measures incorporated by Mr.Yates were not only appropriate, but well thought out and implemented.

The reason for releasing and conditioning Section #16 was that this area would be considered a test area for use of alternative methods to incorporate organic matter into the soil. One method currently being tried is the use of sheep feeding and grazing in concentrated areas. This will be evaluated and any data collected, regarding the outcome of this test, will be included in the Annual Report. Future testing of the topsoils and subsoils must key into the necessary organic and saline soil requirements trying to replicate other successes. It may be prudent to set up a test area to try various soil amendments (i.e. gypsum, cow manure, etc.). According to Mr. Hawkins, all this will be well documented and coordinated with soil scientists.

The location of the future monitor pits were looked at and recent soil test pits examined. It was stressed by Mr. Hawkins that a definite soil horizon change occurred at about 6-8 inches where a saline layer was visually observed. In future stripping of soils for the monitor pits it will be necessary that the stripping differentiates this layer from the soils below. Recent phone conversations with Mr. Hawkins verified that stripping of the monitor pit topsoils, per the six inch criteria, had occurred. Approximately 60,000-70,000 cubic yards of prime topsoil has been saved

from the monitor pit area using the 6-8 inch criteria for stripping. A separate subsoil pile was also created with the material below 6 inches and will be tested before its future use for suitability. Mr. Hawkins hopes that this will benefit future reclamation.

The map showing past variances, reclaimed areas, and future mining areas was given to me during the inspection, along with some correspondence referencing past variances given by the Division. The map was somewhat confusing because of the different data sources from which it was drawn. Therefore it was suggested to simplify the map by including the information on the plate found in the mine plan, so that confusion over which areas are released is minimized.

jb
cc: Greg Hawkins, Brush Wellman
Will Stokes, SITLA
Ron Teseneer, BLM, House Range RA
M023003.mem

During inspection

BRUSH WELLMAN, INC.

DATE: September 12, 1996

TO: Reclamation '96 File

FROM: Clyde Yates

RE: Varianced Dump Acreage as of 1988 Revision

CC: Greg Hawkins, BLM Fillmore Office, UDOGM

DIFFERENCE BETWEEN PLAN AND SURVEY MAPS

PLATE 2.0-1 OUT OF VOL 4

ACREAGES GIVE W VARIANCES

A letter dated September 28, 1988 to Ken Poulson (retired Vice President of Mining and Exploration, BWI) from Lowell Braxton (Administrator, UDOGM) granted several variances and stipulations as requested in the MRP as submitted on June 10, 1988. Page 2, paragraph 3. of the letter discusses variance from revegetation of 255 acres of tuff covered dumps and 177 acres of rhyolite covered dumps. Tabulated below are the details of this acreage. Please note that the MRP is rather enigmatic and that acreage divisions are difficult to decipher in some instances..

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Taurus	33.3	46	Ripped & seeded in 1987
Rainbow	58.0	46	Ripped & seeded in 1989
Total Acreage	**177.4**		

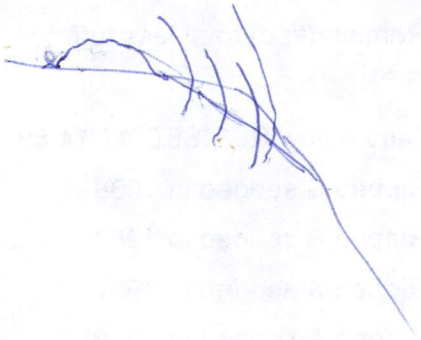
The sum of tuff and rhyolite covered dumps is **432.6 Total Acres**. This data has been illustrated on the drawing (d:\acad\reclaim\DOGM96-1) which was provided to the BLM and UDOGM representatives on their site visits of 9/10/96 and 9/12/96, respectively. The documentation which was provided during the same visits is consistent with this data and the drawing.

/jw

SECTION 16 INSTEAD OF APPLYING MORE TOPSOIL TO SECTION 16 TRY MORE HOLISTIC METHODS, I.E., SHEEP GRAZING USING HAY, ROUGHENING IT UP, ADDING ROCK, ETC.

RS/FL #3 HOLLAND COMPLEMENTED ITEM WITH GOING BEYOND THE PLAN. ADDED RHYOLITE AND TOPSOIL

SIGMA EMMA PIT ROAD TO BE RELEASED WITH HIGHEST HONOR



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Norman H. Bangerter, Governor
Dee C. Hansen, Executive Director
Dianne R. Nielson, Ph.D., Division Director

5 W. North Temple • 3 Triad Center • Suite 350 • Salt Lake City, UT 84180-1203 • 801-538-5340

January 19, 1988

Mining inspector

Mr. Kenneth R. Poulson
Vice President Mining Exploration
Brush Wellman Inc.
67 West 2950 South
Salt Lake City, Utah 84115

Dear Mr. Ken Poulson:

RE: Topaz Mine, M/023/003, Juab County, Utah

On January 6, 1988, Lynn Kunzler of my staff and members of the Bureau of Land Management, Filmore area office, met with you on site to discuss Brush Wellman's request for variance to the revegetation requirments for "tuff" covered dumps (Road side 1 and 2 and the Sigma Emma). All parties concurred that better reclamation success can be achieved if the mineralized tuffs are not used as final surfacing material. Present and proposed reclamation practices do not leave these mineralized tuffs on the surface.

Both the Bureau of Land Management and the Division of Oil, Gas and Mining concur with Brush Wellman's request for a revegetation variance on the above referenced dumps. The resolution of the revegetation variance issue was, I believe, the last issue requiring discussion prior to submission of the mining and reclamation plan for this property by Brush. Please submit your mining and reclamation permit information to the Division for reviews.

I appreciate your patience in resolving these reclamation issues with the Division.

Sincerely,

Lowell

Lowell P. Braxton
Administrator, Mineral Resource
Development and Reclamation Program

re
cc: F. Filas
L. Kunzler
S. Linner
D. Wham
1340R-5

Norman H. Bangerter
Governor
Dee C. Hansen
Executive Director
Dianne R. Nielson, Ph.D.
Division Director

State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340

during inspection

September 28, 1988

Mr. Kenneth R. Poulson
Vice President of Mining and Exploration
Brush Wellman, Inc.
67 West 2950 South
Salt Lake City, UT 84115

Ken

Dear Mr. Poulson,

Re: Mining and Reclamation Plan Review, Topaz Mine, Brush Wellman, Inc., M/023/003, Juab County, Utah

My staff has finished their review of the Mining and Reclamation Plan (MRP), which you submitted on June 10, 1988. They have also evaluated it for consistency with earlier commitments made between Brush Wellman and the Division. Our evaluation follows of the current status of this permit.

The operator has requested several variances in the MRP. All of these will be granted by the Division with the addition of several stipulations. These variances and stipulations are listed below:

1. On page 26 of the MRP, the operator has requested a variance from rule M-10(4), for waste dump outslopes. The Division granted this variance in a plan review letter dated July 22, 1987, page 3, under M-10(4)-JRH. The variance has been addressed to the Division's satisfaction in the MRP.

2. On page 32 of the MRP, the operator has requested a variance from rule M-10(5), to leave pit highwalls at an angle greater than 45 degrees. The Division granted a conditional approval to this variance in a plan review letter dated July 22, 1987, page 3, under M-10(5)-JRH. The variance requires that the operator commit to monitoring, maintaining, and repairing any unstable slope conditions throughout the life of the mine and during the reclamation period.

during inspection

The Division will change the wording of this condition to read: the operator must commit to monitoring, and repairing any unstable slope condition which may impact areas to be reclaimed, or create a safety hazard for Brush personnel or the general public. This condition will apply for the life of the mine and the subsequent bonding period.

3. On page 46 of the MRP, the operator has requested a variance from rule M-10(12) for the revegetation of 255 acres of tuff covered dumps, and 177 acres of rhyolite covered dumps.

The Division granted a variance for the tuff covered dumps in a letter dated January 19, 1988. No Division conditions were stipulated. However, in the MRP, the operator has committed to berm the top and bottom of these dump slopes, and to reseed the bottom berm. The operator has also committed to scarify the top of these dumps to enhance volunteer plant establishment.

The Division will grant a variance from rule M-10(12) on the rhyolite covered slopes under the following condition:

That included with the 3 lbs/ac of rabbitbrush addressed in the MRP, the operator add the following species to the seed mixture:

Sitanion hystrix	squirreltail	2 lbs/ac
Oryzopsis hymenoides	indian ricegrass	2 lbs/ac
Agropyron spicatum	bluebunch wheatgrass	3 lbs/ac
Melilotus officinalis	yellow sweetclover	1 lb/ac
Atrilex canscens	fourwing saltbush	2 lb/ac

The operator may decrease the amount of rabbitbrush to 2 lb/ac if desired. If the rate is changed, it needs to be indicated in the MRP.

4. The operator has requested on page 34 of the MRP, a variance from rule M-10(14), to eliminate topsoiling of several specified backfilled pits. The Division granted a conditional approval in a plan review letter dated July 22, 1987, page 4, under M-10(14)-JSL. The Division stipulated that the operator must stockpile any small amount of topsoil material encountered during the construction of these pit areas; and that any new topsoil material salvage would have to be addressed in the annual report. The operator has addressed this condition on page 22 of the MRP, but still must commit to incorporating the information on salvaged material into the annual report.

during inspection

Once Brush Wellman has adequately addressed the conditions under items 2, 3, and 4 above, the Division will be satisfied with the content of the MRP.

The Board of Oil, Gas and Mining in concert with the Attorney General's office is still reviewing our bonding forms, hence they are still not available at this time. The forms that you will need to complete, for self bonding will be: 1. the Self Bonding Agreement, 2. the Reclamation Contract and, 3. the Self Bonding Qualification Sheet. As soon as these become available we will send them to you. Once completed we will be able to proceed with the final approval of your plan.

Thank you for your time and patience.

Sincerely,

Lowell

Lowell P. Braxton
Administrator
Mineral Development and
Reclamation Program

jb
cc: Minerals Team
Bob Bayer, JBR
5/28-30

Updated 4-30-96

Documentation of Variance, Released & Pending Reclamation Acerage

Year	Job	Site	Status	Document Date
1994	rip & seed dump top	North Blue Chalk	Variance	Oct. 6, 1994
	rip & seed dump top	Rainbow	Variance	Oct. 6, 1994
	Safety berm	Section 16 # 1	Released	Oct. 6, 1994
	Safety berm	Roadside # 3	Released	Oct. 6, 1994
	~~Back fill area~~	~~Roadside # 1 & # 2~~	~~Released~~	~~Oct. 6, 1994~~
1995	Safety berm	Taurus	Released	May 16, 1995
	Safety berm	Sigma Emma	Released	May 16, 1995
	rip & seed roadway	Taurus	Released	Aug. 16, 1995
	rip & seed roadway	Sigma Emma	Released	Aug. 23, 1995
	rip & seed dump	Sigma Emma	Variance	Aug. 23, 1995
1996	rip & seed roadway East	Sigma Emma	Pending ✓	
	rip & seed dump	Section 16 # 1	Pending ✓	with conditions
	rip & seed dump	Roadside # 1 & # 2	Pending ✓	

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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October 6, 1994

Greg Hawkins
Mine Manager
Brush Wellman, Inc.
P.O. Box 815
Delta, Utah 84624

Re: Mine Plan Reclamation Variance and Release Requests, Brush Wellman Inc., Topaz Mining Property, M/23/003, Juab County, Utah

Dear Mr. Hawkins:

This letter is sent in response to your January 28, 1994 and July 29, 1994 letters, which seek formal Division approval of specific mine plan reclamation variance and revegetation release requests. The Division conducted a field inspection of the mine properties on September 8, 1994. We evaluated the results of the second reseeding efforts on the upper Rainbow and North Blue Chalk dumps during the inspection. As stipulated in the Division's September 10, 1992 letter, *a variance is hereby granted for the upper portions of the Rainbow and North Blue Chalk dumps.*

Your letters also request a release for reclamation work performed within the Sigma Emma and Taurus areas. Specifically, a release has been requested for the safety berm construction and road reclamation in these areas. We observed these berms and road conditions during our inspection and hereby grant *a release for the safety berm construction surrounding the Sigma Emma and Taurus pits.* However, due to lack of adequate revegetation, a release cannot be granted at this time for the roads in both areas. Due to erosion on the road, the Division recommends the construction of several waterbars along the portion of road east of the Sigma Emma pit. We have enclosed some references that could be used to assist you in designing and spacing water bars. Scarifying compacted areas and reseeding of both roads may help facilitate future revegetation success.

During the September 8th inspection, you expressed a *verbal* request for release of the safety berm construction at the Roadside #3, Section 16 North #1 pits and the Roadside #1 & #2 backfill area. *A release for the safety berm construction for these areas is granted.* As indicated in Brush Wellman's 1992 Annual Report of

Mining Operations, the Roadside #1 & #2 backfill area was seeded in 1992. The Division will not consider releasing this area until the vegetation has survived at least three growing seasons.

You pointed out during our inspection, the voluntary, supplemental reclamation work performed by Brush Wellman on the north Roadside #1 & #2 dumps. The Division commends the company for "going the extra mile" and reworking this area, especially when there was no apparent regulatory requirement to do so. We thank you for your continued cooperation and patience in resolving these permitting issues. If you have any further questions in this regard, please contact me or Travis Jones at your convenience.

Sincerely,

for TRAVIS JONES
D. Wayne Hedberg
Permit Supervisor
Minerals Regulatory Program

jb
cc: Rody Cox, BLM
Lowell Braxton, DOGM
M023003.var

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
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C4
Faxed BP 12/12/95

August 23, 1995

Greg Hawkins
Mine Manager
Brush Wellman, Incorporated
P.O. Box 815
Delta, Utah 84624

Re: Reclamation Release Request, Sigma Emma and Taurus Reclamation Treatments, Topaz Mine, M/023/003, Juab County, Utah

Dear Mr. Hawkins:

On April 10, 1995, we received your request for a release from the supplemental reclamation work performed on the Sigma Emma and Taurus reclamation treatment areas. On May 16, 1995, we visited the site and viewed the areas where the latest reclamation work had occurred. This letter will discuss how we viewed the success of those efforts and what releases will be granted and what further work will be required.

Outcome of Site Visit

Taurus Pit and Dump Area

We examined the roads, east and west side of the pit (reseeded in the winter of 1994) adjacent to the dump area, where the operator had applied topsoil, gypsum, straw and seed mix. Revegetation success was still "spotty". Some areas are doing fairly well, while other areas are not. The application of straw and horse manure was uneven and there were areas where it was visually estimated to be 8-10 inches thick. In recognition of the harsh onsite environmental conditions, the low fertility of the growth medium, and the good faith revegetation efforts made by the operator, it is our opinion that these road areas can be released. We believe that additional soil amendments and reseeding efforts will not appreciably increase the revegetative success in the near term. Numerous islands/clumps of healthy vegetation have been established and with the passage of time, these areas will expand and ultimately blend in with the vegetation density of the adjacent undisturbed area.

Sigma Emma Pit and Dump Area

Similar roads in the Sigma Emma Pit and Dump area were treated with topsoil, horse manure, straw and gypsum at 150 lb/acre and then reseeded. Straw-bales were used as waterbars and placed on the Sigma Emma road on the east side of the pit. Poor grading practices which lacked sufficient surface roughness and trenches constructed parallel to the slope, have caused the outlets of the waterbars to headcut and erode severely. Because of the initial regrading problems, even the supplemental work expended in this area has shown marginal improvements.

Because of the continued severe erosion, particularly at the waterbar locations, the Sigma Emma pit road on the east side of the pit is **not** released. It is our opinion that the continued erosion problems stem from the original method of grading parallel to the slope, the overall lack of sufficient surface roughness, and a failure to prevent adjacent disturbed area drainage from entering the road. Future reclamation efforts in this area should be carefully considered prior to implementation (i.e., incorporate surface roughness and improved handling of surface drainage). In our experience, it is generally not a best management practice to use straw bales for waterbars. Normally, they are only a temporary fix, are considered non-permanent and are often difficult to install properly and maintain. A suggestion for future efforts on this road may be to remove the straw bale waterbars altogether. An attempt should be made to create a very rough, undulating surface with a track-hoe (or other suitable regrading equipment), that will prevent any significant concentration of drainage on or down the road profile. This should help stabilize the road over the long term, as well as promote increased revegetative success.

The Sigma Emma dump (tuff surface) has had two reseeding efforts. Both seeding efforts proved unsuccessful in achieving the 70% revegetation standard. Because the operator performed the dump reclamation in accordance with the approved plan, a variance from future reclamation efforts was granted by the Division.

Final Determination

Taurus Pit and Dump Area

1. The roads, east and west side of the pit (reseeded in the winter of 1994) adjacent to the dump area, where the operator had applied topsoil, gypsum, straw and seed mix are hereby released.

Sigma Emma Pit and Dump Area

1. The Sigma Emma pit road on the west side of the pit, that received supplemental treatment with topsoil, horse manure, straw and gypsum at 150 lb/acre, then was reseeded is also released.

2. The Sigma Emma pit road on the east side of the pit is **not** released based on the evidence of continued severe erosion, especially at waterbar locations. Supplemental reclamation efforts similar to those previously outlined in this letter will be required. Additional broadcast fertilizing and seeding will be necessary for all impacted areas following any regrading work.

We appreciate your continued cooperation and willingness to work with the Division in working out appropriate solutions to resolve these reclamation challenges. Please feel free to contact me, Tom Munson, or Lynn Kunzler of the Minerals staff should you have questions or concerns in this regard.

Sincerely,

for D. Wayne Hedberg
Permit Supervisor
Minerals Regulatory Program

jb
cc: Rody Cox, Warm Springs RA, BLM
Minerals staff (route)
M023003.let

SURFACE INSPECTION
COMPLIANCE REPORT

Date of Inspection: May 16, 1995

Case Serial No.: UTU-063446

Operator: Brush Wellman

Project Description: Open pit mine for beryllium

Legal Description: T.12S., R.12W., Sec. 4, 5, 6, 7, 8, 9, 10, 17

District and Resource Area: Richfield/House Range

Inspector: Rody Cox (BLM); Wayne Hedberg, Tom Munson, Lynn Kunzler (UDOGM), Greg Hawkins, John Wagner, (Brush Wellman).

On April 5, 1995, Brush Wellman (Brush) made a written request for UDOGM (Utah Division of Oil Gas and Mining) to release some reclaimed workings at the Sigma Emma and Taurus locations. Last year on September 22 1994, an inspection was conducted at the mine site and the following variances and releases were granted.

- Variance for the revegetation of the upper portions of the Rainbow and North Blue Chalk dumps. These areas have been seeded twice.

- Release of the safety berm construction surrounding the Sigma Emma and Taurus pits.

- Release of the safety berm construction for the Section 16 #1 North and Roadside #3 pits, also the Roadside #1 & #2 backfill areas.

Reclamation conducted during the winter of 1994 included adding a soil amendment containing 150 lbs/acre of gypsum plus horse manure. The gypsum was added to stabilize the sodium in the tuff and it may also lower the pH slightly. This was applied in several locations, most notably along reclaimed roads adjacent to and east of the Taurus dump area, also adjacent to and east of the Sigma Emma pit (See attached map). Water bars made from bales of straw had little success in limiting erosion at the south end of the road east of the Sigma Emma pit (See attached map). No decision was made to release these areas, as requested by Brush.

The possible substitution of pig manure for horse manure in the soil amendment was proposed by Brush Wellman. Due to the rough surface of the dumps damaging their equipment, Brush mentioned the possibility of aerial seeding as an alternative to ground seeding.

Rody Cox — Signature of Inspector

Lee Lowley — Signature of Authorized Officer

RECEIVED
SEP 12 199
DIV. OF OIL, GAS & MINING

Roadside I & II	Reveg. Surface Backfilled Pit	Release
Roadside/Fluro #3	Construct Pit Berm	Release
Rainbow Dump	Rip 1/2 Dump	Release
Rainbow Dump	Revegetate 1/2 Dump #2	Variance
#2 = Seeded Twice; * = Insufficient Vegetation for Release		

During this inspection, Greg Hawkins stated Brush Wellman has exceeded reclamation standards in the following areas:

1. Backfilled Pits - Two thirds of Blue Chalk South pit. Roadside I & II pits, also capped with rhyolite, topsoil, then ripped and seeded.

2. Dumps - Roadside I & II dumps, capped with rhyolite, topsoil, ripped and seeded.

The UDOGM has indicated a variance will be granted for the upper portions of the Rainbow and North Blue Chalk dumps; a release for safety berm construction will be granted for the Sigma Emma and Taurus pits; and a release for safety berm construction will be granted for the Roadside #3 and Section 16 North #1 pits. The BLM concurs with these recommendations.

Signature of Inspector

Signature of Authorized Officer

SURFACE INSPECTION
COMPLIANCE REPORT

Date of Inspection: September 22, 1994

Case Serial No.: UTU-063446

Operator: Brush Wellman

Project Description: Open pit mine for beryllium

Legal Description: T.12S., R.12W., Sec. 4, 5, 6, 7, 8, 9, 10, 17

District and Resource Area: Richfield/HRRA

Inspector: Rody Cox, BLM; Greg Hawkins, John Wagner, Lee Davis, Brush Wellman.

REPORT NARRATIVE (REFERENCE STIPULATIONS BY NUMBER OR TITLE)

Recently Brush Wellman made a request for UDOGM (Utah Division of Oil Gas and Mining) to release some reclaimed mine workings and asked for variances on other reclamation. This was the second request, the first request accompanied the 1993, Annual Report (refer to the attached map). A joint inspection with the BLM and UDOGM was scheduled for September 8, 1994, however; due to other commitments (SEP day) the BLM had to cancel. On September 8, 1994, Greg Hawkins made a verbal request for UDOGM to release the safety berm construction at the Roadside #3 and Section 16 North #1 pits and the Roadside #I & II backfilled pits. The purpose of this inspection was to go over the ground covered on September 8, 1994, review the reclamation and examine areas where variances are requested. The requests and respective reclamation are listed in the table below:

SITE	TASK		REQUEST
Section 16 N #1 Pit	Construct Pit Berm		Release
Taurus Dump	Rip Roads		Release
Taurus Dump	Revegetate Roads	*	Release
Taurus Pit	Construct Pit Berm		Release
Sigma Emma Dump	Rip Roads		Release
Sigma Emma Dump	Revegetate Roads	*	Release
Sigma Emma Pit	Construct Pit Berm		Release
Blue Chalk North Dump	Rip Dump Top		Release
Blue Chalk North Dump	Revegetate Dump Top	#2	Variance
Roadside I & II	Rip Surface Backfilled Pit		Release

Norman H. Bangerter
Governor
Dee C. Hansen
Executive Director
Dianne R. Nielson, Ph.D.
Division Director

State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340

September 10, 1992

Mr. Greg Hawkins
Mine Manager
Brush Wellman, Incorporated
P. O. Box 815
Delta, Utah 84624

Dear Mr. Hawkins:

Re: Mine Plan Variance Request Approval, Fall 1992 Reclamation Work, Topaz Mine, M/023/003, Juab County, Utah

The Division is in receipt of your August 31, 1992 letter discussing reclamation applications for this fall 1992 season. Also in the letter, you requested two variances.

The Division supports and approves the variance request to apply a 3" veneer of topsoil on the Roadside and Blue Chalk South areas.

The Division also supports the reapplication of seed to the Rainbow and Blue Chalk North dumps, and will grant a variance from the revegetation standard once reseeding has been verified.

Thank you for keeping up with your reclamation schedule and keeping us apprised of any changes to your plan.

Sincerely,

R. Dayne Sadberg

for Holland Shepherd
Senior Reclamation Specialist

p.s. The Division is attempting to keep track of any voluntary reclamation performed by mine operators in Utah. Brush has been involved in such activities. Would it be possible to summarize and send us a list of reclamation areas (with @ acreages) which you have initiated voluntarily?

jb
cc: Christina Reed, BLM, House Range RA
Lowell Braxton, DOGM
M023003

BRUSH WELLMAN, TOPAZ MINE
SOIL TESTING PARAMETERS

SAMPLE LOCATION & NO.	Conductance	pH	Sodium Abs.	Calcium	Magnesium	SAR
#1. Roadside dump Good Veg.	707	8.3	8.3	9.6	4.2	123
#2. Roadside dump Good Veg.	342	9.2	6.55	13.5	4.5	109
#3. Roadside dump Low Veg.	301	9.7	1.34	2.3	2.6	12.6
#4. Roadside dump Low Veg.	353	9.5	10.3	10.1	6.2	169
#5. Roadside Top Soil Pile	664	9.2	16.3	28.2	9.6	392
#6. Sect. 16 Dump Good Veg.	669	9.4	14.6	15.5	3.9	248
#7. Sect. 16 Dump Good Veg.	760	8.8	11.8	100	17.3	487
#8. Sect. 16 South Top Soil Pile	530	9.2	12.7	15.4	2.6	205
#9. Sect. 16 Dump No Veg.	4920	8.4	16.9	150	21	837
#10. Sect. 16 Dump No Veg.	678	9.6	0.14	0.5	0.5	0.7
#11. Sect. 16 North Top Soil Pile	372	8.9	2.54	8.2	1.7	30.7
#12. Monitor Pit 0' to 1'	715	8.7	33.3	33	8	821
#12. Monitor Pit 1' to 2'	2950	9.1	70.1	83	35	3020
#12. Monitor Pit 2' to 3'	8090	8.5	88.9	227	123	6690
#12. Monitor Pit 3' to 4'	12000	7.7	65.1	585	185	7050
#12. Monitor Pit 4' to 5'	10900	8	48.7	658	172	5430
#13. Monitor Pit 0' to 1'	3430	8.6	39.3	166	35	2130
#13. Monitor Pit 1' to 2'	12200	7.8	39	593	155	4130
#13. Monitor Pit 2' to 3'	16200	7.7	51.2	1060	356	7550
#13. Monitor Pit 3' to 4'	14500	7.9	60.3	1200	470	9730
#13. Monitor Pit 4' to 5'	15000	8	56.8	1120	479	9020
#14. Monitor Dump 0' to 1'	458	9.5	15.1	118	38	738
#14. Monitor Dump 1' to 2'	362	9.6	11.3	24.6	7.4	248
#14. Monitor Dump 2' to 3'	410	9.5	12.8	18.4	5.8	246
#15. Monitor Dump 0' to 1'	484	9.1	20.3	12.9	3.7	320
#15. Monitor Dump 1' to 2'	2630	9.3	46.9	138	74	2750
#15. Monitor Dump 2' to 3'	3470	9.1	50.1	186	112	3500
#15. Monitor Dump 3' to 4'	2900	9.2	46.6	92	67	2410
#15. Monitor Dump 4' to 5'	2480	9.2	39.9	78	62	1950
#16. Monitor Dump 0' to 1'	786	9	14.6	9.5	4.3	216
#16. Monitor Dump 1' to 2'	2100	9.4	42.5	34	19	1240
#16. Monitor Dump 2' to 3'	2480	9.4	48.6	44	29	1700
#16. Monitor Dump 3' to 4'	3240	9.3	49.1	43	29	1700
#16. Monitor Dump 4' to 5'	2610	9.4	45.8	37	26	1490

FAX TRANSMISSION

JBR ENVIRONMENTAL CONSULTANTS, INC.
P.O. Box 1606
CEDAR CITY, UT 84721
801-586-8793
FAX: 801-586-7106

To: Clyde Yates, BW

Fax #: (801) 864 5556

From: Joseph M. Jarvis

Subject: Soil Testing Results

Date: August 30, 1996

Pages: 2, including this cover sheet.

COMMENTS:

I have reviewed the soil sampling results from Chemtech. I constructed the attached table to illustrate some of the groupings of these soils. Basically the soil testing did not provide an easy indicator of soil suitability to use in the field. For instance, the soils in the good vegetation areas generally indicate a lower pH and SAR but there are many exceptions. Any soil with a pH over 8.5 or SAR over 15 is considered unsuitable for revegetation. Several soil samples in the good vegetation category have pH's exceeding 9.0 and SAR's over 15. The low pH reading of 8.4 in one poor vegetation category would be misleading if used as an indicator for good soils. I suspect the success in revegetation is more tied to the amount of organic material available at the seeding depth and the precipitation pattern that leaches the surface layers of the topsoils.

Then when you look at the potential topsoil materials at Monitor it becomes evident that most of the deeper soils are too hot for plant growth. The SAR and sodium readings of 39+ and 2100+ respectively are way off the scale for use in revegetation. But many of the pH readings for these same soil samples are less than 8.5, a very misleading indicator.

The groupings for topsoils of 0-1 foot depth indicate that most of these soils are marginal and some may have excessive sodium levels. But if any soil category is remotely suitable for revegetation then it is the surface one foot of soils. To help negate some of the sodium affects the native plant growth could be included in the stripped soil material and allowed to decompose in the topsoil piles. The decomposition would provide additional organic material to the topsoil material that would tend to reduce pH and subsequently reduce the affects of the salts. You may also consider sprinkler irrigation on the topsoil piles to enhance decomposition.

You may call me at 586-8793

Joe

Brush Wellman Soil Sampling August 1996

Soil Sample	pH	SAR	Sodium	Suitability
Good Veg				
#1	8.3	8.3	123	fair
#2	9.2	6.6	109	fair
#5	9.2	16.3	392	poor
#6	9.4	14.6	248	poor
#7	8.8	11.8	487	fair
#8	8.4	16.9	205	poor
#11	8.9	2.5	30.7	fair
Poor Veg				
#3	9.7	1.3	12.6	poor
#4	9.5	10.3	169	poor
#9	8.4	16.9	837	poor
#10	9.6	0.1	0.7	poor
Topsoil Areas				
#12 0-1'	8.7	33.3	821	unsuitable
#13 0-1'	8.6	39.3	2130	unsuitable
#14 0-1'	9.5	15.1	738	poor
#15 0-1'	9.1	20.3	320	poor
#16 0-1'	9.0	14.6	216	poor